Impact Study on MSD
Rate Payers of Proposed Consolidation/Merger

Phase I – City of Asheville Water System

November 2012

Report Prepared By:
ARCADIS G&M of North Carolina
Executive Summary

ES.1. Purpose and Overview of Study

The Municipal Sewerage / Water System Committee (Committee) submitted a final report to the Legislative Research Commission on the merger of the City of Asheville (City) water system with the Metropolitan Sewerage District of Buncombe County, NC (“MSD” or “District”). The Committee report provided a number of recommendations for the implementation of a merger of the City water system with MSD. Legislation to allow the merger of City water system with MSD and potentially include other water systems in Buncombe County is anticipated to be brought before the North Carolina House of Representatives in January 2013.

In advance of the promulgation of any legislation by the North Carolina legislature, the MSD retained ARCADIS G&M of North Carolina (ARCADIS) to conduct a detailed study of the potential financial impact to MSD ratepayers of a proposed merger of the City water system and other water systems in Buncombe County with MSD (Report). The study was conducted in two phases:

- Phase I – City water system, including the former Buncombe County water system
- Phase II - Town of Biltmore Forest, Town of Montreat and Town of Weaverville

The purpose of this Report is to study, identify and quantify financial impacts to MSD ratepayers associated with the proposed merger of the City water system with the MSD. This Report currently presents the findings of the Phase I analysis.

The review and evaluation of legal, governance, valuation and compensation issues is beyond the scope of this study. It is our understanding that the analysis of such issues will be performed subject to the enactment of the proposed legislation. In accordance with the schedule outlined by the MSD, the findings and conclusions of Phase I of this study will be presented to the MSD Planning Committee and MSD Board in November 2012.

ES.2. Metropolitan Sewerage District

ES.2.1. Overview of System

The MSD was established in 1962 to provide wastewater treatment and collection to the municipalities and sanitary districts within Buncombe County. The MSD provides wastewater transport and treatment for most of the urbanized portion of Buncombe County, North Carolina. Its service area is over 180 square miles and services over 50,000 customers. Most of the MSD’s customers are located inside its geographical boundaries. The MSD provides wastewater collection and treatment for the City and
Executive Summary

Buncombe County, North Carolina
Impact Study on MSD Rate Payers of Proposed Consolidation/Merger

surrounding communities, including Biltmore Forest, Weaverville, Black Mountain, Montreat, Woodfin, Woodfin Sanitary Water & Sewer District, and certain unincorporated areas of Buncombe County. Through separate contractual arrangements, the MSD also serves customers in the Cane Creek Water and Sewer District in northern Henderson County and in the Avery Creek Sanitary Sewer District in southern Buncombe County.

Figure ES-1 illustrates the MSD’s service area.

![MSD Service Area Map](image)

**Figure ES-1: MSD Service Area Map**

**ES.2.2. MSD Organization and Management**

The MSD is governed by a Board comprised of twelve members appointed by the governing bodies of eight local governments and other political subdivisions and serve three-year overlapping terms:

- City of Asheville (3 members)
Buncombe County (3 members)
Biltmore Forest (1 member)
Black Mountain (1 member)
Montreat (1 member)
Weaverville (1 member)
Woodfin Sanitary Water and Sewer District (1 member)
Town of Woodfin (1 member)

The Board is solely responsible for setting rates and fees for service. The Chairman, Vice-chairman and Secretary-Treasurer are elected annually by the Board. The Board employs the General Manager (currently Thomas Hartye, P.E.), who is responsible for managing all MSD operations.

The organizational chart shown below presents the current governing management structure of MSD.

Including the General Manager and his Executive Secretary, MSD has a total of 148 full-time equivalent (FTE) staff.
ES.2.3. Billing and Collections

The MSD direct bills approximately 460 industrial and well-water customers, it also contracts with the municipalities and other member agencies which furnish water on a retail basis to residential customers for billing and collecting the District’s user charges and fees from such users. The fee that the MSD pays for billing and collections is included as a separate item on such bills.

The City currently serves and bills approximately 85 percent of the users of the MSD’s facilities. The other municipalities and political subdivisions rendering such billing and collection services to the MSD are the Woodfin Sanitary Water and Sewer District and the towns of Biltmore Forest, Weaverville, Black Mountain and Montreat. Henderson County, North Carolina also renders billing and collection services to the MSD for customers located in the Cane Creek Water and Sewer District, which is located in adjacent Henderson County.

ES.2.4. Description of Assets

The MSD owns and operates a regional wastewater collection and treatment system in Buncombe County NC. Wastewater is treated at its 40 million gallons per day (MGD) secondary treatment plant serving Buncombe County (specifically Asheville, Biltmore Forest, Black Mountain, Montreat, Weaverville, Woodfin and Buncombe County at large). Overall the MSD treatment facility serves approximately 50,000 residential and commercial customers and over 20 distinct industries. For FY2012, the average daily flow through the plant was 18.7 MGD and the maximum flow treated was 50.2 MGD. Sludge from the treatment process is either burned in a thermal converter or processed in an alkaline stabilization process to produce Nutri-Lime, an agricultural supplement.

In addition, the District owns and operates the Craggy Dam hydroelectric generating facility on the French Broad River adjacent to the Wastewater Reclamation Facility (WRF). This facility is capable of generating enough electricity to supply most of the needs of the WRF, and is rated at 2,550 kW.

The MSD covers approximately 180 square miles and the collection system includes over 974 miles of public sanitary sewer line, 32 public pump stations and approximately 27,700 manhole access points.

ES.2.5. Condition of Assets

Based on review of available documents, including regulatory compliance reports, the MSD assets provide effective wastewater treatment and collection. The WRF provides effective/efficient treatment services to the community, averaging carbonaceous biochemical oxygen demand (CBOD) and total suspended solids (TSS) removal efficiencies of 93 percent and 90 percent, respectively. Flow to the WRF remains well below hydraulic capacity for the plant, with an average flow of 18.7 million gallons per
day. The WRF remained in compliance for all permitted parameters and received a favorable review by N.C. Department of Environment and Natural Resources (NC-DENR) and Western North Carolina Regional Air Quality Agency (WNCRAQA) regional office staff with respect to the annual facility inspections. In addition, the WRF has demonstrated consistent compliance with its major permits (i.e., National Pollutant Discharge Elimination System (NPDES), air, collection system). The MSD has also achieved several industry recognition awards for its performance. For example, in FY 2012 it received the National Association of Clean Water Agencies (NACWA) “Peak Performance Award” for tenth consecutive year acknowledging Treatment Plant compliance.

The MSD has undertaken an aggressive program to correct existing known collection system problems. Between 1990 and 2011, over 880,000 linear feet of pipe have been replaced and over $259 million has been re-invested in sewer rehabilitation projects. However, due to the large size of the MSD system, there is much work still to be done. From 2011 to 2021, the MSD expects to rehabilitate or replace an additional 500,000 linear feet of pipe.

Over the past 21 years, the MSD has reinvested $275 million in its wastewater system, with average annual CIP spending of $13.1 million over the period. This average amount corresponds to approximately 1.2 percent replacement rate as compared to the FY2011 estimated replacement cost of assets. The total CIP spending over the period comprised approximately 59 percent of the total operating revenues generated over the same period, and indicates a significant focus on capital reinvestment.

The MSD’s collection system has experienced a significant reduction in the number of sanitary sewer overflows (SSOs) since 2000 as a result of its proactive approach to system maintenance. The trend has been continual, down from 289 SSOs in FY2000 to 25 in FY2012.

**ES.2.6. Capital Improvement Program**

The MSD has developed both a Collection System Master Plan and Treatment Plant Facilities Plan to guide development of a 10-year Capital Improvement Program (CIP). These documents are regularly updated to reflect member agency planning efforts and development trends, as well as changing economic conditions and system needs. MSD utilizes a CIP Committee, comprised of representatives from all of their member agencies, that makes annual recommendations to the MSD Board regarding program priorities. The MSD has planned for a ten-year CIP totally approximately $149 million.

**ES.2.7. Financial Condition and Utility Rates**

The MSD fiscal policies and procedures are reflective of its strong fiscal management of its wastewater utility. MSD has kept debt levels relatively low as indicated by its low
Executive Summary

Buncombe County, North Carolina
Impact Study on MSD Rate Payers of Proposed Consolidation/Merger

debt to equity ratio, moderate amount of outstanding debt per customer, and consistently high debt service coverage. The moderate amount of outstanding debt per customer is reflective of MSD’s focus of capital reinvestment. MSD’s solid historical financial results have aided MSD in maintaining its strong credit rating. MSD’s credit is rated AA+ by Fitch Ratings, Aa2 by Moody’s, and AA by Standard & Poor’s.

The MSD Board of Directors has the authority to set rates and fees. Monthly sewer rates consist of three components; a maintenance charge, a billing charge, and a treatment (volume) charge. The maintenance charge recovers service, inspection, and maintenance-related operational and capital costs, and is charged based on water meter size. Currently, the MSD domestic user charge is $3.98 ccf (in District) and $3.99 (out of District) and its billing charge is $2.21 per bill. Additional rates and charges are provided in the MSD ordinance.

ES.3. Asheville Water System

ES.3.1. Overview of System

The City’s water system is comprised of 3 water treatment plants (WTPs), 40 pump stations, 32 ground storage tanks, approximately 1,660 miles of pipe, 11 pressure reducing valves, one pressure sustaining valve, and one control valve. The mountainous terrain requires 39 independent pressure zones to avoid extreme (i.e., excessive or minimal) pressures. The current system supplies water to areas that range in elevation from 1,950 to 3,700 feet mean sea level (MSL). The existing distribution system provides over 21 million gallons of potable water to approximately 125,000 people on an average daily basis, including the recently acquired Buncombe County water system.

Runoff from a 20,000 acre protected watershed in Buncombe County provides roughly 7 billion gallons of stored water in the Burnette and Bee Tree reservoirs. This raw water supply is treated at two facilities: the William DeBruhl WTP (5 MGD) and the North Fork WTP (31.5 MGD). The Mills River/French Broad River provides an additional raw water source. This raw water is treated at the Mills River WTP (7.5 MGD). The William DeBruhl WTP, which is located adjacent to the Bee Tree Reservoir approximately 9 miles northeast of downtown Asheville, was constructed in 1985. The North Fork WTP, which is roughly 12 miles northeast of downtown Asheville, came online in 1955. The William DeBruhl and North Fork WTPs provide potable water to the eastern, western, and northern sections of the system. In 1999, the Mills River WTP was placed in service. It is located 15 miles south of downtown Asheville and primarily supplies potable water to the southern portion of the system. Total permitted capacity is 44 MGD, compared to an average daily demand of 21 MGD.

The existing distribution network consists of over 1,660 miles of pipe ranging in diameter from two inches to 36 inches. Approximately 80 percent of the system demand is supplied by the North Fork and William DeBruhl WTPs.
The City system provides water to approximately 56,000 customers.

**ES.3.2. Asheville Water Resources Department Organization and Management**

The City’s Water Resources Department (the “Water Resources Department”) is run by a Director who is administratively responsible to the City Manager. The organization structure for the Water Resources Department is presented below.

The management structure consists of the City Manager, Water Resources Director, and five Divisions, each led by a Division Manager reporting up to the Water Resources Director. Including the Water Resources Director and his Administrative Assistant, the Water Resources Department has a total of 147 FTEs.

**ES.3.3. City Functions and Major Contracts**

The City provides services to the Water Resources Department for which the Water Resources Department pays indirect costs to the City’s General Fund. These services include: engineering, budgeting, accounting and financial reporting, fleet management, human resources, information technology, inventory management, purchasing and risk management. The Water Resources Department also has a number of service contracts in
place related to the operation and maintenance of its water system. These service contracts include:

- Building maintenance
- Grounds maintenance
- Utility bill printing, stuffing and mailing
- Office supplies and equipment
- Water storage tank cleaning, coating and painting
- Street restoration/paving, and
- Capital projects construction

**ES.3.4. Condition of Assets**

The condition of the City’s major water system assets was assessed based on focused field investigations, visual observations, and information made available by the City.

Field investigations of major assets (e.g., storage tanks, pump stations, treatment facilities, and other above ground assets) of the City Water System were completed. Given the time constraints of the project and the detailed evaluations already conducted by others, assessment of the system’s dams was based solely on the results of such reports and investigations.

Each of the City’s three water treatment facilities was visited by an ARCADIS water system specialist, along with a representative number of the most critical tanks and pumping stations in the system. For buried infrastructure such as water distribution mains, we relied on available field inspection and maintenance information compiled by others, along with other representative reports, as available.

The general condition of all three water treatment facilities is good, reflecting recent renovation projects and the City’s proper attention to maintenance. Relatively minor issues such as painting, small leak repair, corrosion, and general housekeeping were noted, and are detailed in this Report. The City currently holds the following permits and certifications: Public Water Supply Operating Permits, NPDES permits, Air Quality permits, state laboratory permits, State Laboratory Certification and Wastewater Laboratory Certification. Based on the data reports in the 2011 Annual Water Quality Report, the City Water System is in compliance with all Federal Drinking Water Rules.

Due to the mountainous terrain in Asheville’s water system, approximately 40 pump stations are needed to provide adequate pressure to the various pressure zones. Many of these pump stations are located in series with other tanks and pump stations to create stepped pressure zones along areas having significant elevation differences.
A representative sample of pump stations was visited for condition assessment purposes. The pump stations visited were selected by the City as representative of the City water system based on several factors, including but not limited to size, type, age, condition, etc. Since many of the facilities were constructed within the last 20 years, it is anticipated that conditions will likely be similar from location to location. With the exception of two pumps requiring maintenance at the Black Mountain pump station, the pump stations appear to be in good condition.

With respect to its distribution system, the City has embarked on a program to identify and replace segments of its distribution system based on recommendations provided by Brown & Caldwell (2006 Report) and JJ&G (2009 Master Plan Report). The City has been able to achieve a level of replacement of approximately 30,000 feet per year (0.3 percent of total system annually). The JJ&G Report recommended a replacement level of 80,000 feet per year (1 percent of total system).

The City is in the process of updating its Replacement Planning Model (RPM) by Brown & Caldwell. It is anticipated that the updated RPM will identify and prioritize specific water segments according to a certain schedule.

The City’s water system consists of a series of different pressure zones to account for the mountainous terrain. Each of these pressure zones, as well as each treatment plant, has at least one tank to provide storage and suction for its associated pumping facilities. These tanks are generally constructed of either pre-stressed concrete, steel, or bolted steel with a glass fused lining. In addition to the tanks, various pressure reducing valves (PRVs) also provide connectivity between different pressure zones. Similar to the pump stations, a representative sample of tanks and PRVs was visited for condition assessment purposes. With the exception of Poplar Ridge Tank which was observed to have an active leak, the remaining tanks observed appeared to be in good condition.

The City typically prepares a rolling 5-year CIP for the Water System that is updated each year to account both for projects that have already had funds encumbered and those that are added to or deleted from the list. The City is currently updating their latest CIP and expanding it to 10 years to match the same planning horizon as MSD.

The City’s water system CIP is typically divided into the following categories:

- North Carolina Department of Transportation (NCDOT) projects
- Distribution System projects (generated from the Asset Management Plan)
- Water Production projects
- Neighborhood Water Line Replacement projects (generated from the RPM model)
- Water Master Plan projects (generated from the 2009 JJ&G Water Master Plan)
The original CIP provided by the City to MSD in August, 2012 identified recommended projects totaling approximately $37 million for the FY2012/13 through FY2016/17 planning period. According to City staff, this number represented the amount of funding that would be available to address CIP projects, and not necessarily the entire actual project needs of the system. City staff revised the CIP in October, 2012 to include all anticipated needs, resulting in a 5-year CIP totaling approximately $66 million for FY2013/14 through FY2017/18. Further, an estimate of $22 million/year was provided for the succeeding 5-year period later revised down to $12 million, but without any specific project detail.

**ES.3.5. Financial Condition and Utility Rates (City)**

The City Water Resources Department has fiscal policies and/or requirements, such as revenue covenants, debt service coverage requirements, debt to equity targets, and capital financing policies which guide the fiscal management of its water utility.

Over the past 21 years, the City has reinvested $181 million in its water system, with an average annual CIP spending of $8.6 million over the period. This average amount corresponds to a replacement rate of approximately 0.7 percent of the FY2011 replacement cost of assets. The total CIP spending over the period comprised approximately 40 percent of the total operating revenues generated over the same period. The City has kept debt levels relatively low as indicated by its moderately low debt to equity ratio, relatively low amount of outstanding debt per customer, and variable but consistently moderate to high debt service coverage. These historical financial results have aided the City in maintaining its strong water utility credit rating. The City’s underlying water utility credit rating is Aa2 by Moody’s, and AA by Standard & Poor’s.

The City Council sets the water rates, and no other agency or body regulates or has authority over the City’s utility rates. The City’s user charge structure consists of (1) an administrative charge that recovers direct billing and collection cost, (2) volume charges that vary based on the cost of providing service to different classes of customers, and (3) a capital improvement charge that varies by meter size and is intended to recover the cost of water system infrastructure improvements. There is also no variation in water rates between City water customers located inside and outside the corporate limits of the City. A summary of the existing water rates is provided in Table ES-1.
Executive Summary

Buncombe County, North Carolina
Impact Study on MSD Rate Payers of Proposed Consolidation/Merger

Table ES-1:
Existing Water Rates – City of Asheville

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate Per CCF</th>
<th>Base Fee Per Bill</th>
<th>Meter Size</th>
<th>Monthly Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consumption Charge</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Family Residential</td>
<td>$3.77</td>
<td>$6.00</td>
<td>5/8&quot;</td>
<td>$3.82</td>
</tr>
<tr>
<td>Multi-Family</td>
<td>$3.19</td>
<td>$6.00</td>
<td>3/4&quot;</td>
<td>4.37</td>
</tr>
<tr>
<td>Commercial (&lt;= 1,000 ccf monthly)</td>
<td>$3.19</td>
<td>$6.00</td>
<td>1&quot;</td>
<td>52.42</td>
</tr>
<tr>
<td>Commercial (&gt;1,000 ccf monthly)</td>
<td>$1.69</td>
<td>$6.00</td>
<td>1-1/2&quot;</td>
<td>87.36</td>
</tr>
<tr>
<td>Commercial (&lt;=2,000 ccf bimonthly)</td>
<td>$3.19</td>
<td>$6.00</td>
<td>2&quot;</td>
<td>152.88</td>
</tr>
<tr>
<td>Commercial (&gt;2,000 ccf bimonthly)</td>
<td>$1.69</td>
<td>$6.00</td>
<td>3&quot;</td>
<td>480.48</td>
</tr>
<tr>
<td>Commercial (&lt;=2,000 ccf bimonthly)</td>
<td>$3.19</td>
<td>$6.00</td>
<td>4&quot;</td>
<td>840.84</td>
</tr>
<tr>
<td>Commercial (&gt;2,000 ccf bimonthly)</td>
<td>$1.69</td>
<td>$6.00</td>
<td>6&quot;</td>
<td>1,081.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8&quot;</td>
<td>1,321.32</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10&quot;</td>
<td>1,561.56</td>
</tr>
<tr>
<td><strong>Base Fee</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| All water accounts are charged a $6.00 base fee per bill

The City also charges other miscellaneous fees and charges for specific water-related services. For example, the City charges a delinquent bill fee of $15, disconnect/reconnect fees of $50, and establish or transfer of service fees of $55. These and other miscellaneous fees generated approximately $1.7 million for the Water Resources Fund in FY2012. A complete list of miscellaneous fees related to the City’s water system can be found on the City’s website.

The City’s General Fund provides support services to the Water Resources Department and these costs are allocated to the Water Resources Department through indirect charges. In 2011, a Central Services Cost Allocation Plan\(^1\) was completed which detailed the indirect cost allocations to the City. These costs totaled approximately $2,076,000. In FY 2009 through FY2012, indirect costs were as follows:

- FY2009: $2,324,365
- FY2010: $2,676,753
- FY2011: $2,499,821
- FY2012: $2,349,404
- FY2013: $2,206,649 (budgeted)

\(^1\)Central Services Cost Allocation Plan, City of Asheville, Maximus, Inc. 2011.
These indirect charges include costs related to building/office space, customer service and building, engineering, financial, fleet, human resources, information technology, inventory management, purchasing, risk management, and other City indirect costs (i.e., allocation of elected officials/governing body) and administration (i.e., City Manager).

ES.4. Evaluation of Consolidation/Merger

ES.4.1. Organization and Management

Under a consolidated/merged organization and management structure, all functions associated with water and wastewater service in the Asheville area would be unified, including purchasing, billing and bill collection, human resources, information technology, fleet management, etc., which could result in cost savings. For purposes of this study, it was assumed that the consolidation would not change the personnel makeup of either service provider and the existing water and sewer functions would report to the MSD General Manager and the MSD Board of Directors. In order to evaluate the projected staffing levels and associated potential financial impact of a consolidated organization, the following assumptions were utilized:

- All City Water Resources Department employees, including currently funded vacancies, will be part of consolidated organization. The only potential staff reductions considered were those resulting from retirements or natural attrition.
- A potential of thirteen (13) additional staff would be hired to fully replace/provide services that the City currently provides to the Water Resources Department for which the Water Resources Department currently pays indirect costs to the City’s General Fund of approximately $2.4 million per year. These staff are in the areas of:
  - Financial Services (2), for Purchasing and Inventory Management
  - Human Resources (2)
  - Information Technology (3)
  - Fleet Maintenance, Building Trades, and additional administrative duties (6)
- All eligible retirees will retire, but in most cases rehiring will occur to fill vacated positions. However, there are instances where effective management and re-engineering of existing positions may be possible; thus, negating the need to fill a position vacated due to retirement.
- Staff were deemed eligible to retire based on meeting any one of the following conditions:
  - 30 years of service
  - 25 years of service and age 60
  - Age 66
- Annual attrition rate assumed to be 3 percent of total budgeted staff, of which 75 percent are assumed to be refilled over the study period (as it is not possible to...
determine where the natural attrition will occur within each organization, a detailed analysis of job descriptions, roles, responsibilities, duties and the potential to cover such functions with remaining staff was unable to be performed).

- MSD has averaged 4.0 percent annual turnover since FY2004. With the filling of the majority of those vacated positions, MSD has still lowered its budgeted staff count from 167 to 148 since FY2001.

- The Water Resources Department has averaged 11.4 percent annual turnover since FY2005 and has increased its staff from 126 to 147 over that same timeframe. There is no anticipated staff increase for operational work that is not currently being performed by the Water Resources Department.

- Other utilities have experienced similar and even greater efficiency gains than these turnover rates associated with cross-training, job-sharing, and re-engineering of positions as part of organizational consolidation efforts.

Annual salaries and fringe benefits inflationary rate assumed to be 3 percent for consolidated organization.

Using the assumptions identified above, along with a review of job descriptions and associated roles, responsibilities, and duties of individual MSD and Water Resources Department staff, an analysis was performed to identify the projected staffing levels required of the consolidated organization. This analysis was carried for each of the next ten years, allows for the projection of staffing levels and associated salaries and benefits costs associated with consolidation, as presented in the following table.
### Table ES-2: Projection of Staffing Levels and Salaries / Benefits Under Merged Scenario

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consolidated Organization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-Time Employees</td>
<td>295</td>
<td>293</td>
<td>291</td>
<td>287</td>
<td>285</td>
<td>283</td>
<td>279</td>
<td>276</td>
<td>274</td>
<td>270</td>
</tr>
<tr>
<td>Retirement Eligible</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>3</td>
<td>7</td>
<td>14</td>
<td>12</td>
<td>9</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Retirement Position Rehired</td>
<td>8</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>7</td>
<td>12</td>
<td>11</td>
<td>9</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Natural Attrition</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Natural Attrition Rehired</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>FY-End Staff Count</td>
<td>293</td>
<td>291</td>
<td>287</td>
<td>285</td>
<td>283</td>
<td>279</td>
<td>276</td>
<td>274</td>
<td>270</td>
<td>267</td>
</tr>
<tr>
<td><strong>Subtotal Salaries and Benefits</strong></td>
<td>$20,651,680</td>
<td>$21,658,962</td>
<td>$22,134,605</td>
<td>$22,775,263</td>
<td>$23,432,474</td>
<td>$23,806,327</td>
<td>$24,263,199</td>
<td>$24,810,184</td>
<td>$25,181,812</td>
<td>$25,656,088</td>
</tr>
<tr>
<td><strong>Additional Post-Merger Staff</strong></td>
<td>$0</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td><strong>Additional Staff Cost</strong></td>
<td>$-</td>
<td>$1,281,056</td>
<td>$1,319,488</td>
<td>$1,359,072</td>
<td>$1,399,845</td>
<td>$1,441,840</td>
<td>$1,485,095</td>
<td>$1,529,648</td>
<td>$1,575,537</td>
<td>$1,622,804</td>
</tr>
<tr>
<td><strong>Total FY-End Staff Count</strong></td>
<td>293</td>
<td>304</td>
<td>300</td>
<td>298</td>
<td>296</td>
<td>292</td>
<td>289</td>
<td>287</td>
<td>283</td>
<td>280</td>
</tr>
<tr>
<td><strong>Total Salaries and Benefits Costs</strong></td>
<td>$20,651,680</td>
<td>$22,940,018</td>
<td>$23,454,093</td>
<td>$24,134,335</td>
<td>$24,832,318</td>
<td>$25,248,167</td>
<td>$25,748,294</td>
<td>$26,339,832</td>
<td>$26,757,349</td>
<td>$27,278,891</td>
</tr>
</tbody>
</table>

---

1. Data for FY 2013 provided by MSD and City of Asheville Water Dept.
2. Projected on personnel dates of birth and dates of hire provided by MSD and the City of Asheville Water Dept.
3. Projected based on analysis of job descriptions, roles, and responsibilities of retirement eligible staff from both organizations, anticipated efficiency gains and re-engineering of positions, as well as conversations with MSD HR personnel.
4. Assumed at 3% of each organization's staffing level.
5. Assumed that 25% of natural attrition positions will not be replaced due to efficiency gains and re-engineering of positions.
6. Based on average salaries and fringe benefits calculated from MSD and City Water Department FY 2013 Budget Detail for Salaries and Fringe Benefits. Starting in FY 2014, City staff health benefit was increased from current $8,950 to $11,465, which is MSD's health benefit cost per employee. In addition, City Water Dept. staff salaries and fringe benefits not including healthcare were increased by 6.4% over a 4-year period (FY 2014-17) to mirror the compensation adjustments for MSD staff over the past four years. Salaries and Fringe Benefits were also inflated 3% annually.
7. Additional staff required to fully replace/provide services that the City of Asheville currently provides to the Water Dept. for which the Water Dept. pays indirect costs to the City's General Fund of approximately $2.4 million annually.
8. Cost for additional post-merger staff, which includes compensation adjustments for supervisory staff taking on additional responsibility, inflated at 3% annually.
Based on the information provided in the table above, it is projected that the combined staffing levels could decrease from 304 initially post-consolidation, to 280 in FY2022. This represents an approximate 1 percent average annual reduction, which is reasonable considering the historical attrition trends and projected retirement eligibility. It is also reasonable based on what other, similar utilities have experienced as a result of the efficiency gains associated with cross-training, job-sharing, and re-engineering of positions that is often a part of organizational consolidation efforts. The majority of the positions eligible for retirement during the 10-year timeframe, that are projected to not be filled once they become vacant, are associated with sewer collection system and water distribution system maintenance, which have the greatest overlap of skill sets, training, and knowledge.

It should be noted that for this analysis, Water Resources Department staff salaries and benefits were projected to increase by $2,695 per employee beginning in FY2014 to eliminate the current discrepancy between the Water Resources Department’s healthcare benefit costs per employee ($8,950) and MSD’s healthcare benefit costs per employee ($11,645). However, it is quite possible that the overall healthcare costs per employee for the consolidated utility will be reduced after consolidation, due to the increased buying power of a larger organization.

In addition, the City Water Department staff salaries and fringe benefits not including healthcare were increased 3 percent annually with an additional 6.4 percent over a 4-yr period (FY2014-17) to mirror the compensation adjustments for MSD staff over the past four years.

**ES.4.2. Financial Analysis**

The financial analysis of the merger was prepared under the following assumptions:

- MSD would retain all current City Water Resources Department employees, and these employees would be subject to the same MSD personnel policies applicable to current MSD employees;
- MSD would assume all City water system indebtedness;
- MSD would keep water accounting and sewer accounting separate following the merger, with no immediate impact to sewer customers or MSD’s long-term business plan;
- All City water customers, including wholesale customers would remain unchanged after the merger; and
- Evaluation of cost impacts, if any, associated with compensation to the City for water system assets was beyond the scope of this study.

A summary of the costs and benefits associated with the merger were prepared under three merger scenarios. Merger Scenario 1 assumes MSD transfers all of the staff from
the City’s Water Resources Department to MSD and maintains that level of staffing from FY2014 through FY2022. Merger Scenario 1 does not reflect the opportunities for operational efficiencies. Merger Scenario 2 assumes MSD transfers all of the staff from the City’s Water Resources Department to MSD and reduces staff through attrition and retirements, as described above. Merger Scenario 2 incorporates the water staff operational efficiencies that are projected to be realized as a result of the merger. Merger Scenario 3 incorporates potential reductions in MSD staff through attrition and retirements directly related to the merger. The projected cost savings of the merger under these three scenarios are shown in Tables ES-3, ES-4, and ES-5.

It is anticipated that the net savings associated with the merger under Merger Scenario 1 is approximately $10.3 million over the period FY2014 through FY2022, or an average annual savings of approximately $1.1 million. It is anticipated that the net savings associated with the merger under Merger Scenario 2 is approximately $16.8 million over the period, or an average annual savings of approximately $1.9 million per year. These savings estimates only include the impact to water operations. However, it is expected that additional operational savings could also be realized as a result of the merger which could result in reduction in MSD staff through attrition and retirements, saving an additional $5.1 million over the period. Therefore, the total estimated annual savings under Merger Scenario 3 is $21.9 million, or an average annual savings of $2.4 million per year. These projected net savings could result in the lowering of the City projected water rate increases under the merger scenarios.

In addition to the savings identified above, merging the Water with MSD would mean the elimination of NCDOT “Non-betterment” costs for water line relocation for DOT projects. The savings can be significant, i.e. millions of dollars. For instance, this cost from 2001-2012 ranged from $6.7 Million to $14.5 Million based on City records. Major NCDOT projects slated for the next ten years have recently been delayed but eventually would have significant budgetary (and rate) impacts to the water system under the City of Asheville. The non-betterment costs would not apply to MSD due to the NC General Statutes and therefore would not be borne by the water customer.
Table ES-3: Summary of Cost Savings – Merger Scenario 1

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>City vs MSD Water Salaries and Benefits Cost Difference</td>
<td>$540,219</td>
<td>$692,560</td>
<td>$853,555</td>
<td>$1,023,587</td>
<td>$1,054,294</td>
<td>$1,085,923</td>
<td>$1,118,501</td>
<td>$1,152,056</td>
<td>$1,186,617</td>
<td></td>
</tr>
<tr>
<td>Elimination of City Overhead Charges</td>
<td>(2,272,848)</td>
<td>(2,341,034)</td>
<td>(2,411,265)</td>
<td>(2,483,603)</td>
<td>(2,558,111)</td>
<td>(2,634,854)</td>
<td>(2,713,900)</td>
<td>(2,795,317)</td>
<td>(2,879,176)</td>
<td></td>
</tr>
<tr>
<td>Addition of 13 Positions (Salary &amp; Benefits)</td>
<td>-</td>
<td>1,281,056</td>
<td>1,319,488</td>
<td>1,359,072</td>
<td>1,399,845</td>
<td>1,441,840</td>
<td>1,485,095</td>
<td>1,529,648</td>
<td>1,575,537</td>
<td>1,622,804</td>
</tr>
<tr>
<td>Elimination of Sullivan Act Transfers included in City CIP</td>
<td>-</td>
<td>(1,341,262)</td>
<td>(1,676,578)</td>
<td>(1,676,578)</td>
<td>(1,676,578)</td>
<td>(1,676,578)</td>
<td>(1,848,306)</td>
<td>(1,874,137)</td>
<td>(1,900,401)</td>
<td></td>
</tr>
<tr>
<td>Customer Service &amp; Maintenance Buildings</td>
<td>-</td>
<td>2,600,000</td>
<td>1,400,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Additional Cost for IT Integration</td>
<td>-</td>
<td>1,735,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Transaction Cost - Legal, Engineering, Financing</td>
<td>-</td>
<td>700,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Elimination of MSD Sewer Billing (Net of Adjusted Revenue)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total Annual Cost (Savings) of Merger</td>
<td>$3,242,165</td>
<td>$ (605,564)</td>
<td>$ (1,875,215)</td>
<td>$ (1,736,750)</td>
<td>$ (1,738,555)</td>
<td>$ (1,740,414)</td>
<td>$ (1,914,057)</td>
<td>$ (1,941,861)</td>
<td>$ (1,970,156)</td>
<td></td>
</tr>
<tr>
<td>Total Cost (Savings) Over 9 Years</td>
<td>$10,280,406</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Annual Savings</td>
<td>(1,142,267)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Table ES-4: Summary of Cost Savings – Merger Scenario 2

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>City vs Water MSD Salaries and Benefits Cost Difference</td>
<td>$ - $</td>
<td>$ 540,219</td>
<td>$ 692,560</td>
<td>$ 853,555</td>
<td>$ 1,023,587</td>
<td>$ 1,054,294</td>
<td>$ 1,085,923</td>
<td>$ 1,118,501</td>
<td>$ 1,152,056</td>
<td>$ 1,186,617</td>
</tr>
<tr>
<td>Reduction in Salaries and Benefits Cost - Water Staff Attrition</td>
<td>(135,514)</td>
<td>(282,863)</td>
<td>(368,956)</td>
<td>(461,924)</td>
<td>(713,673)</td>
<td>(898,435)</td>
<td>(1,009,514)</td>
<td>(1,213,100)</td>
<td>(1,427,992)</td>
<td></td>
</tr>
<tr>
<td>Elimination of City Overhead Charges</td>
<td>(2,272,848)</td>
<td>(2,341,034)</td>
<td>(2,411,265)</td>
<td>(2,483,603)</td>
<td>(2,558,111)</td>
<td>(2,634,954)</td>
<td>(2,713,900)</td>
<td>(2,795,317)</td>
<td>(2,879,176)</td>
<td></td>
</tr>
<tr>
<td>Addition of 13 Positions (Salary &amp; Benefits)</td>
<td>1,281,056</td>
<td>1,319,488</td>
<td>1,359,072</td>
<td>1,399,845</td>
<td>1,441,840</td>
<td>1,485,095</td>
<td>1,529,648</td>
<td>1,575,537</td>
<td>1,622,804</td>
<td></td>
</tr>
<tr>
<td>Elimination of Sullivan Act Transfers included in City CIP</td>
<td>(1,341,262)</td>
<td>(1,676,578)</td>
<td>(1,676,578)</td>
<td>(1,676,578)</td>
<td>(1,676,578)</td>
<td>(1,676,578)</td>
<td>(1,848,306)</td>
<td>(1,874,137)</td>
<td>(1,900,401)</td>
<td></td>
</tr>
<tr>
<td>Customer Service &amp; Maintenance Buildings</td>
<td>2,600,000</td>
<td>1,400,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Additional Cost for IT Integration</td>
<td>1,735,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Transaction Cost - Legal, Engineering, Financing</td>
<td>700,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Elimination of MSD Sewer Billing (Net of Adjusted Revenue)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Total Annual Cost (Savings) of Merger</strong></td>
<td>$ - $</td>
<td>$ 3,106,651</td>
<td>$ (888,427)</td>
<td>$ (2,244,171)</td>
<td>$ (2,196,674)</td>
<td>$ (2,452,228)</td>
<td>$ (2,638,849)</td>
<td>$ (2,923,571)</td>
<td>$ (3,154,961)</td>
<td>$ (3,398,147)</td>
</tr>
<tr>
<td>Total Cost (Savings) Over 9 Years</td>
<td>$ (16,792,377)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Annual Savings</td>
<td>(1,865,820)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table ES-5: Summary of Cost Savings – Merger Scenario 3

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>City vs MSD Water Salaries and Benefits Cost Difference</td>
<td>$- $540,219</td>
<td>$592,560</td>
<td>$853,555</td>
<td>$1,023,587</td>
<td>$1,054,294</td>
<td>$1,085,923</td>
<td>$1,118,501</td>
<td>$1,152,056</td>
<td>$1,186,617</td>
<td></td>
</tr>
<tr>
<td>Reduction in Salaries and Benefits Cost - Water Staff Attrition</td>
<td>(135,514)</td>
<td>(282,863)</td>
<td>(368,956)</td>
<td>(461,924)</td>
<td>(713,673)</td>
<td>(898,435)</td>
<td>(1,009,154)</td>
<td>(1,213,100)</td>
<td>(1,427,992)</td>
<td></td>
</tr>
<tr>
<td>Reduction in Salaries and Benefits Cost - Wastewater Attrition</td>
<td>(162,112)</td>
<td>(250,463)</td>
<td>(343,970)</td>
<td>(442,861)</td>
<td>(547,376)</td>
<td>(657,764)</td>
<td>(774,282)</td>
<td>(897,199)</td>
<td>(1,026,795)</td>
<td></td>
</tr>
<tr>
<td>Elimination of City Overhead Charges</td>
<td>(2,272,848)</td>
<td>(2,341,034)</td>
<td>(2,411,265)</td>
<td>(2,483,803)</td>
<td>(2,558,111)</td>
<td>(2,634,954)</td>
<td>(2,713,900)</td>
<td>(2,795,317)</td>
<td>(2,879,176)</td>
<td></td>
</tr>
<tr>
<td>Addition of 13 Positions (Salary &amp; Benefits)</td>
<td>- 1,281,056</td>
<td>1,319,488</td>
<td>1,359,072</td>
<td>1,399,845</td>
<td>1,441,840</td>
<td>1,485,095</td>
<td>1,529,648</td>
<td>1,575,537</td>
<td>1,622,804</td>
<td></td>
</tr>
<tr>
<td>Elimination of Sullivan Act Transfers included in City CIP</td>
<td>- (1,341,262)</td>
<td>(1,676,578)</td>
<td>(1,676,578)</td>
<td>(1,676,578)</td>
<td>(1,676,578)</td>
<td>(1,676,578)</td>
<td>(1,848,306)</td>
<td>(1,874,137)</td>
<td>(1,900,401)</td>
<td></td>
</tr>
<tr>
<td>CS &amp; Maintenance Buildings</td>
<td>- 2,600,000</td>
<td>1,400,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional Cost for IT Integration</td>
<td>- 1,735,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transaction Cost - Legal, Engineering, Financing</td>
<td>- 700,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elimination of MSD Sewer Billing (Net of Adjusted Revenue)</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Annual Cost (Savings) of Merger</td>
<td>$- $2,944,539</td>
<td>$1,138,891</td>
<td>$2,588,141</td>
<td>$2,641,535</td>
<td>$2,999,604</td>
<td>$3,296,613</td>
<td>$3,697,853</td>
<td>$4,052,160</td>
<td>$4,424,942</td>
<td></td>
</tr>
</tbody>
</table>

Total Cost (Savings) Over 9 Years $21,895,199
Average Annual Savings $(2,432,800)
ES.4.3. Regulatory Analysis

Rules Governing Public Water Supply are codified in the North Carolina Administrative Code Title 15A, Subchapter 18C. Federal regulations are adopted by reference in the State Rules. The current water system is in compliance with all drinking water regulations, as is shown in the Report, and continued compliance is expected with the consolidated/merged system.

As an existing public water system, the City currently has all of these documents in place. A merger with MSD would require that these documents be revised, as applicable, and in the case of the Water System Management Plan submitted to the Public Water Supply Section. At a minimum, the changes to these plans would include MSD as the owner. Assuming that current operation policies remain in place, any additional revisions are anticipated to be minor.

ES.5. Conclusions

The conclusions of this study are as follows:

- The City water system facilities are generally in good condition to provide adequate water supply throughout the service area. The facilities appear to be maintained and operated in accordance with generally accepted utility standards.

- The most recent draft of the City’s CIP seems reasonable to maintain the facilities in good repair and operating condition and, when the projects are completed, should be adequate relative to the treatment plants and pump stations to allow the facilities to continue to meet the present federal and state regulatory requirements.

- It was estimated that a potential of thirteen (13) additional staff would be needed to fully replace/provide services that the City currently provides to the Water Resources Department for which the Water Resources Department pays indirect costs to the City’s General Fund of approximately $2.4 million per year.

- While there are a number of potential future regulations that may affect the operations and reporting, there are no imminent future regulations that we believe would have any different impact to the MSD than to the City. The MSD is generally accepting the increased newly (unapproved) planned CIP identified by the City for the water system. In addition, the MSD has the history, organizational structure and programs / policies in place to fund and make any necessary adjustments to the rates.

- The operation and maintenance of the City water system is anticipated to continue to operate generally consistent with how it does now. Staff at individual facilities will maintain their same positions and responsibilities, and current programs to address system operations and maintenance will remain in place. Existing contracts, such as the tank maintenance contract, will remain in effect.

- As part of implementation, consideration will need to be given with regard to the management of the City’s watershed (approximately 20,000 acres). This land is
currently owned by the City, but it may make sense for the MSD to lease and manage this property since activities on the property could have a direct impact to the water system.

- Merger Scenario 1 assumes MSD transfers all of the staff from the City’s Water Resources Department to MSD and maintain that level of staffing from FY2014 through FY2022. It is anticipated that the net savings associated with the merger under Merger Scenario 1 is approximately $10.3 million over the period FY2014 through FY2022, or an average annual savings of approximately $1.1 million.

- Merger Scenario 2 assumes MSD transfers all of the staff from the City’s Water Resources Department to MSD and reduces staff through attrition and retirements. It is anticipated that the net savings associated with the merger under Merger Scenario 2 is approximately $16.8 million over the period, or an average annual savings of approximately $1.9 million per year.

- Merger Scenario 3 assumes the same parameters as Merger Scenario 2, but also incorporates potential reductions in MSD staff through attrition and retirements directly related to the merger. It is expected that additional operational savings could also be realized as a result of the merger which could result in reduction in MSD staff through attrition and retirements, saving an additional $5.1 million over the period. Therefore, the total estimated annual savings under Merger Scenario 3 is $21.9 million, or an average annual savings of $2.4 million per year.